



Substitute for form 1449A-PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet **1 of 9**

**Application Number** **10/781,897**

**Filing Date** **February 20, 2004**

**First Named Inventor** **Piero BONISSONE et al.**

**Art Unit** **4172**

**Examiner Name** **Eric WONG**

**Attorney Docket Number** **52493.000364**

### U.S. PATENT DOCUMENTS

*Examiner Initials	Cite No.	DOCUMENT NUMBER Number - Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5148365	09-15-1992	Dembo	
		US- 5195026	03-16-1993	Nonaka	
		US- 5347446	09-19-1994	Iino	
		US- 5351184	09-27-1994	Lu	
		US- 5587897	12-24-1996	Iida	
		US- 5659667	08-19-1997	Buescher	
		US- 5682465	10-28-1997	Kil	
		US- 5784696	07-21-1998	Melinikoff	
		US- 5799287	08-25-1998	Dembo	
		US- 5875437	02-23-1999	Atkins	
		US- 5884287	03-16-1999	Edesess	
		US- 5930762	07-27-1999	Masch	
		US- 6003018	12-14-1999	Michaud	
		US- 6032109	02-28-2000	Ishii	
		US- 6078904	06-20-2000	Rebane	
		US- 6219649	04-17-2001	Jameson	
		US- 6240399	05-29-2001	Frank et al.	
		US- 6275814	08-14-2001	Giasante et al.	
		US- 6282520	08-28-2001	Schirripa	
		US- 6289296	09-11-2002	Umeno	
		US- 6289508	09-11-2002	Erickson	
		US- 6336102	01-01-2002	Luskin et al.	
		US- 6226103	01-01-2002	Baker	
		US- 6351740	02-26-2002	Rabinowitz	

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		First Named Inventor	Piero BONISSENE et al.		
		Art Unit	4172		
		Examiner Name	Eric WONG		
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		US- 6360191	03-19-2002	Koza et al.	
		US- 6278464	08-21-2001	Kohavi	
		US- 6373485	04-16-2002	Sowizral	
		US- 6393409	05-21-2002	Young et al.	
		US- 6405179	06-11-2002	Rebane	
		US- 6445391	09-23-2002	Sowizral	
		US- 6601044	07-29-2003	Wallman	
		US- 7089206	08-08-2006	Martin	
		US- 7047167	05-16-2006	Yamaguchi	
		US- 20010014875	08-16-2001	Young et al.	
		US- 20010051936	12-13-2001	Michalewicz	
		US- 20010055019	12-27-2001	Sowizral	
		US- 20020000986	01-03-2002	Sowizral	
		US- 20020002521	01-03-2002	Shearer	
		US- 20020033835	03-21-2002	Sowizral	
		US- 20020038272	03-28-2002	Menchero	
		US- 20020050990	05-02-2002	Sowizral	
		US- 20020059294	05-16-2002	Bottarelli	
		US- 20020091605	07-11-2002	Labe, Jr.	
		US- 20020111780	08-15-2002	Sy	
		US- 20020116158	08-22-2002	Heching	
		US- 20020116309	08-22-2002	Keyes	
		US- 20020123951	09-05-2002	Olsen et al.	
		US- 20020123953	09-05-2002	Goldfarb	
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Piero BONISSONE et al.

Art Unit

4172

Examiner Name

Eric WONG

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Attorney Docket Number

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		US- 20020128544	09-12-2002	Diab	
		US- 20020129332	09-12-2002	Svensson	
		US- 20020138299	09-26-2002	Nations	
		US- 20020138383	09-26-2002	Rhee	
		US- 20020143682	10-03-2002	Bergmann	
		US- 20020147671	10-10-2002	Sloan et al.	
		US- 20030139993	07-24-2003	Feuerverger	
		US- 20030144944	07-31-2003	Kalt et al.	
		US- 20030177077	09-18-2003	Norman	
		US- 20030182224	09-25-2003	Horigan et al.	
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		US- 20030208427	11-06-2003	Peters et al.	
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		US- 20040220837	11-04-2004	Bonissone	
		US- 20040181479	09-16-2004	Zosin et al.	
		US- 20040186804	09-23-2004	Chakraborty	
		US- 20040186814	09-23-2004	Chalermkraivuth	
		US- 20040199448	10-07-2004	Chalermkraivuth	
		US- 20040243499	12-02-2004	Bateson	
		US- 20050187844	08-25-2005	Chalermkraivuth	
		US- 20050187845	08-25-2002	Eklund et al.	
		US- 20050187846	08-25-2005	Subbu et al.	
		US- 20050187847	08-25-2005	Bonissone et al.	
		US- 20050187848	08-25-2005	Bonissone et al.	

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Application Number	10/781,897
Filing Date	February 20, 2004
First Named Inventor	Piero BONISSTONE et al.
Art Unit	4172
Examiner Name	Eric WONG

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### **FOREIGN PATENT DOCUMENTS**

*Examiner Initial	Cite No.	FOREIGN PATENT DOCUMENT		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	TRANSLATION	
		Country Code Number-Kind Code (if known)					YES	NO
		JP	7-85110 (Abstract)	03-031-1995	Nobuaki		<input type="checkbox"/>	<input type="checkbox"/>
		JP	63-279301 (Abstract)	11-16-1988	Masahiro et al.		<input type="checkbox"/>	<input type="checkbox"/>
		EP	0356191 A2 (Abstract)	02-28-1990	Freedman et al.		<input type="checkbox"/>	<input type="checkbox"/>
		EP	0505087 A2 (Abstract)	09-23-1992	Kumahora et al.		<input type="checkbox"/>	<input type="checkbox"/>
		JP	6-95707 (Abstract)	04-08-1994	Minoru et al.		<input type="checkbox"/>	<input type="checkbox"/>
		WO	95/25295 (Abstract)	09-21-1995	Krist et al.		<input type="checkbox"/>	<input type="checkbox"/>
		WO	96/18162 (Abstract)	06-13-1996	Atkins		<input type="checkbox"/>	<input type="checkbox"/>
		WO	98/13776 (Abstract)	04-02-1998	Masch		<input type="checkbox"/>	<input type="checkbox"/>
		WO	99/23592 (Abstract)	05-14-1999	Young et al.		<input type="checkbox"/>	<input type="checkbox"/>
		WO	99/39290 (Abstract)	08-05-1999	Pellegrinelli et al.		<input type="checkbox"/>	<input type="checkbox"/>
		WO	99/49399 (Abstract)	09-30-1999	Lang		<input type="checkbox"/>	<input type="checkbox"/>
		JP	2001-76057 (Abstract)	03-23-2001	Norio		<input type="checkbox"/>	<input type="checkbox"/>
		WO	01/31481 A2 (Abstract)	05-03-2001	Bullard et al.		<input type="checkbox"/>	<input type="checkbox"/>
		WO	01/39005 A2 (Abstract)	05-31-2001	Dembo et al.		<input type="checkbox"/>	<input type="checkbox"/>
		WO	01/55890 A2 (Abstract)	08-02-2001	Herschap et al.		<input type="checkbox"/>	<input type="checkbox"/>
		WO	01/55939 A2 (Abstract)	08-02-2001	Caruana et al.		<input type="checkbox"/>	<input type="checkbox"/>
		WO	01/77872 A2 (Abstract)	10-18-2001	Plumer et al.		<input type="checkbox"/>	<input type="checkbox"/>
		WO	01/84355 A2 (Abstract)	11-08-2001	Narang et al.		<input type="checkbox"/>	<input type="checkbox"/>
		WO	01/93153 A1 (Abstract)	12-06-2001	Seidel et al.		<input type="checkbox"/>	<input type="checkbox"/>
		WO	02/075650 (Abstract)	09-26-2002	Yao et al.		<input type="checkbox"/>	<input type="checkbox"/>

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<b>Sheet</b>	<b>6 of 9</b>	<b>Attorney Docket Number</b>	<b>52493.000364</b>	
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### **OTHER DOCUMENTS - NON-PATENT LITERATURE DOCUMENTS**

*Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and-or country where published	TRANSLATION	
			YES	NO
		JPMorgan/Reuters RiskMetrics™ - Technical Documents Fourth Edition, Dec. 17, 1996	<input type="checkbox"/>	<input type="checkbox"/>
		Jorge Mina & Andrew Ulmer Delta-Gamma Four Ways August 31, 1999	<input type="checkbox"/>	<input type="checkbox"/>
		Stefan Pichler & Karl Selitsch A Comparison of Analytical VaR Methodologies for Portfolios That Include Options December 1999	<input type="checkbox"/>	<input type="checkbox"/>
		Jorge Mina & Jerry Yi Xiao return to RiskMetrics: The Evolution of a Standard April 2001	<input type="checkbox"/>	<input type="checkbox"/>
		BLANK	<input type="checkbox"/>	<input type="checkbox"/>
		Abbass, H.A., Sarker, R Newton, C, PDE:a Pareto-frontier differential evolution approach for multi-objective optimization problems, Proceedings of the 2001 Congress on Evolutionary Computation, volume 2, IEEE, May 27-30, 2001	<input type="checkbox"/>	<input type="checkbox"/>
		Ignizio, James, An Algorithm for Solving the Linear Goal Programming Problem by Solving Its Dual, The Journal of the Operational research Society, Vol. 36, No. 6 (June 1985) pp 507-515	<input type="checkbox"/>	<input type="checkbox"/>
		Masud, Abu, Interactive Sequential Goal Programming, The Journal of the Operational Research Society, Vol. 32, No. 5 (May 1981), pp. 391-400	<input type="checkbox"/>	<input type="checkbox"/>
		Bellmore, M, Generalized Penalty function Concepts in Mathematical Optimization, Operations research, Vol. 18, No. 2 (March-April 1970), pp. 229-252	<input type="checkbox"/>	<input type="checkbox"/>
		Iwamura, K., Chances constrained integer Programming Models for Capital Budgeting in Fuzzy Environments, The Journal of the Operational Research Society, Vol. 49, No. 8 (August 1998), pp. 854-860	<input type="checkbox"/>	<input type="checkbox"/>
		Iyer, Naresh Sundaram, "A family of dominance filters for multiple criteria decision making: Choosing the right filter for a decision situation". Proquest Dissertations and Theses 2001, Section 0168, Part 0984 169 pages: [Ph.D. dissertation]. United States -- Ohio: The Ohio State University: 2001, Publication Number: AAT 3035522.	<input type="checkbox"/>	<input type="checkbox"/>
		Albanese, C., et al. Dimension Reduction in the computation of Value-at-risk, February 28, 2002	<input type="checkbox"/>	<input type="checkbox"/>

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		<b>Filing Date</b>	<b>February 20, 2004</b>	
		<b>First Named Inventor</b>	<b>Piero BONISSONE et al.</b>	
		<b>Art Unit</b>	<b>4172</b>	
		<b>Examiner Name</b>	<b>Eric WONG</b>	
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<b>OTHER DOCUMENTS - NON-PATENT LITERATURE DOCUMENTS</b>				
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				<input type="checkbox"/> YES <input type="checkbox"/> NO
		Baglioni, S., et al., An Evolutionary Approach to Multiperiod Asset Allocation, Genetic Programming, (EuroGP'2000), vol. 1802, pp 225--236, Springer-Verlag, Edinburgh, 2000		<input type="checkbox"/> <input type="checkbox"/>
		Loraschi, A., et al., An Evolutionary Algorithm For Portfolio Selection In A Downside Risk Framework, European Journal of Finance, 1994		<input type="checkbox"/> <input type="checkbox"/>
		Kalvelagen, E., Solving Multi-Objective Models With GAMS, citeseer.nj.nec.com/article/kalvelagen02solving.html, September 20, 2002		<input type="checkbox"/> <input type="checkbox"/>
		Freedman, Roy S., A Comparison of Stochastic Search Heuristics for Portfolio Optimization, Second International Conference on Artificial Intelligence Applications on Wall Street, Software Engineering Press, April, 1993, pp. 149-151		<input type="checkbox"/> <input type="checkbox"/>
		Streichert, F., Introduction to Evolutionary Algorithms, University of Tuebingen, Presented at the Frankfurt MathFinance Workshop, April 2, 2002		<input type="checkbox"/> <input type="checkbox"/>
		Korczak, et al., Evolutionary Approach to Portfolio Optimization, University of Wroclaw, Institute of Computer Science, 2001		<input type="checkbox"/> <input type="checkbox"/>
		Eklund, N., Multi-objective optimization of spectra using genetic algorithms, Dept. of Decision Sciences and Engineering Systems, RPI, 2001		<input type="checkbox"/> <input type="checkbox"/>
		Bodie, Z., et al., Investments, Fourth edition, Irwin/McGraw Hill, 1999		<input type="checkbox"/> <input type="checkbox"/>
		DeFusco, R.A., et al., Quantitative Methods for Investment Analysis, AIMR, 2001		<input type="checkbox"/> <input type="checkbox"/>
		Hull, J.C., Options, Futures & Other Derivatives, Fourth Edition, Prentice-Hall, 2000		<input type="checkbox"/> <input type="checkbox"/>
		Back, Thomas, Evolutionary Algorithms in Theory and Practice, Oxford University Press, New York, 1996		<input type="checkbox"/> <input type="checkbox"/>
		Breiman, L., et al., Classification and Regression Trees, Wadsworth International Group, California, 1984		<input type="checkbox"/> <input type="checkbox"/>
		De Ath, G., Multivariate Regression Trees: A new technique for modeling species-environment relationships, Ecology, pp 1105, 2001		<input type="checkbox"/> <input type="checkbox"/>
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## OTHER DOCUMENTS - NON-PATENT LITERATURE DOCUMENTS

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			YES	NO
		Coello, C., et al. Evolutionary Algorithm MOP Approaches, Evolutionary Algorithms for Solving Multi-Objective Problems, pp 59-99, Kluwer Academic, 2002	<input type="checkbox"/>	<input type="checkbox"/>
		Goldberg, D., Genetic Algorithms in Search, Optimization, and Machine Learning, Addison-Wesley, Massachusetts, 1989	<input type="checkbox"/>	<input type="checkbox"/>
		Dempster, A., Upper and lower probabilities induced by a multivalued mapping, Annals of Mathematical Statistics, 38: 325-339, 1976	<input type="checkbox"/>	<input type="checkbox"/>
		Shafer, G., A Mathematical Theory of Evidence, Princeton University Press, Princeton, New Jersey, 1967	<input type="checkbox"/>	<input type="checkbox"/>
		Schweizer B., et al., Associative Functions and Abstract Semi-Groups, Publicationes Mathematicae Debrecen, 10:69-81, 1963	<input type="checkbox"/>	<input type="checkbox"/>
		Bonissone, P., Summarizing and Propagating Uncertain Information with Triangular Norms, International Journal of Approximate Reasoning, 1(1):71-101, January 1987	<input type="checkbox"/>	<input type="checkbox"/>
		Winston, W., Operations Research: Applications and Algorithms, Duxbury Press, Belmont, California, 1994	<input type="checkbox"/>	<input type="checkbox"/>
		Goldberg, D., The Design of Innovation: Lessons from and for Competent Genetic Algorithms Kluwer Academic Publishers, Norwell, Mass., 2002	<input type="checkbox"/>	<input type="checkbox"/>
		Michalewicz, Z., Genetic Algorithms+Data Structures=Evolution Programs (3rd. Ed). Springer-Verlag, Berlin, 1996	<input type="checkbox"/>	<input type="checkbox"/>
		Josephson, J.R., et al. An Architecture for Exploring Large Design Spaces, National Conference of the American Association for Artificial Intelligence, Madison, Wis., pp 143-150, 1998	<input type="checkbox"/>	<input type="checkbox"/>
		Tarascio, V., Pareto's Methodological Approach to Economics, University of North Carolina Press, Chapel Hill, Va., 1968	<input type="checkbox"/>	<input type="checkbox"/>
		Fong, G., A Multidimensional Framework for Risk Analysis, Financial Analysts Journal, July/August, 1997	<input type="checkbox"/>	<input type="checkbox"/>
		Larsen, D., et al., Multivariate Regression Tree for analysis of abundance data, 2002	<input type="checkbox"/>	<input type="checkbox"/>

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Piero BONISSONE et al.

Art Unit

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			YES	NO
		Reilly, F.K., et al., Investment Analysis and Portfolio Management, 6th Edition, Dryden, 2000	<input type="checkbox"/>	<input type="checkbox"/>
		Fabozzi, F.J., Fixed income analysis for the chartered financial analyst program, Fabozzi Associates, 2000	<input type="checkbox"/>	<input type="checkbox"/>
		Indraneel, D., et al., A Closer Look at Drawbacks of Minimizing Weighted Sums of Objectives for Pareto Set Generation in Multicriteria Optimization Problems Structural Optimization, 14(1), pp 63-69, 1997	<input type="checkbox"/>	<input type="checkbox"/>
		Schaffer, J.D., et al., Multi-objective Learning via Genetic Algorithms, Ninth International Joint Conference on Artificial Intelligence, pp 593-595, 1985	<input type="checkbox"/>	<input type="checkbox"/>
		Subbu, Raj, et al., Modeling and Convergence Analysis of Distributed Coevolutionary Algorithms, IEEE International Congress on Evolutionary Computation, pp 1276-1283, 2000	<input type="checkbox"/>	<input type="checkbox"/>
		Greene, F., A method for utilizing diploid/dominance in genetic search, First IEEE International Conference on Evolutionary Computation, v1, 439. IEEE Service Center, Piscataway, N.J., pp 171-176, 1994	<input type="checkbox"/>	<input type="checkbox"/>
		(In book "Foundations of Genetic Algorithms") D. Goldberg and K. Deb, A comparison of selection schemes used in genetic algorithms. In "Foundations of Genetic Algorithms," Rawlins, G. (Ed.), 69. M. Kaufmann Publishers, San Mateo, Calif., 69-93, 1991 (select pages from book, including paper Abstract)	<input type="checkbox"/>	<input type="checkbox"/>
		Coello, C., et al., MOSES: A multiobjective optimization tool for engineering design, Engineering Optimization, 31:337-368, 1999	<input type="checkbox"/>	<input type="checkbox"/>
		Horn, J., Multicriterion Decision Making, Handbook of Evolutionary Computation, (Back T, Fogel DB and Michalewicz Z, eds.), pp F1.9:1-F1.9:15, IOP Publication Ltd and Oxford University Press, 1997	<input type="checkbox"/>	<input type="checkbox"/>
		Subbu, Raj, et al., Modeling and Convergence Analysis of Distributed Coevolutionary Algorithms, IEEE Transactions on Systems, Man, and Cybernetics - Part B: Cybernetics, Vol. 34, No. 2, April 2004	<input type="checkbox"/>	<input type="checkbox"/>
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